

JOURNAL

OF THE

WASHINGTON ACADEMY OF SCIENCES

Vol. 19

JANUARY 19, 1929

No. 2

GEOLOGY.—*A mastodon skeleton near San Francisco Bay.*¹ ELIOT BLACKWELDER, Stanford University.

Well preserved remains of mastodons are sufficiently uncommon to merit the publication of definite records concerning them, especially when the geologic surroundings have been studied. In June, 1927, parts of a mastodon skeleton were discovered at the bottom of a pit that was being dug for a cistern about 2.3 miles west of Menlo Park station, which in turn is about 28 miles southeast of San Francisco. The bones which were recovered and are now in the museum of the Department of Geology at Stanford University consist of a molar tooth, three sections of a tusk and some fragments of ribs and other bones. A second tooth was found but was not given to the University. The enamel of the teeth was in such excellent condition that it was not even discolored, but the other bones were rather fragile. Although it is possible that the entire skeleton was present, the cost of digging it out would under the circumstances have been prohibitive.

The section exposed in the pit was as follows:

	Feet
6. Black clayey soil.....	4
5. Mottled drab and russet joint clay.....	11
4. Olive clay with many small chalky nodules.....	1
3. Olive-drab sandy clay.....	5
2. Coarse brown sand and very fine gravel; clean and free from iron oxide.....	1
1. Light green clay.....	1+

The bones were found embedded in the lowest layer of clay (1) and were partly covered by the sand (2). The impervious nature of the clay probably accounts for the good condition of the skeleton.

¹ Received December 5, 1928.

The location of this find is on a lot belonging to Mr. John Lebord, about one-half mile east of the intersection of the Woodside highway and the foothill road. It is in the plain formed by the coalescent alluvial fans that fringe San Francisco Bay. Physiographic evidence indicates that the entire deposit is of Recent and late Pleistocene age.

In this connection it may be of interest to recall that the depth and general position of the mastodon skeleton is about the same as that in which a human skull was found on the Stanford campus a few years previously.² The suggestion of contemporaneity is not to be lightly dismissed.

The tooth from this collection was submitted to Dr. W. D. Matthew, of the University of California, for examination. He found that it resembled rather closely the teeth of *Mastodon merriami* and *M. mathewi* Osborn—two species, of late Miocene and early Pliocene age, which have recently been segregated in a distinct genus, *Miomastodon*, by Dr. H. F. Osborn. As this genus is very imperfectly known the reference of the tooth to either of the above species can not be made with much confidence. The occurrence of the skeleton in the unconsolidated and entirely undeformed strata of the alluvial plain indicates strongly that the age is probably not greater than late Pleistocene. In that part of the California Coast Ranges all Pliocene formations have been strongly folded and faulted and even the early Pleistocene deposits have been disturbed and much eroded. The clear implication of the physiographic evidence is believed to be more significant in this case than the general resemblance of the teeth to those of a genus not yet known from post-Pliocene formations.

GEOLOGY.—*The Cretaceous section in Black Mesa, northeastern Arizona.*¹ JOHN B. REESIDE, JR. and ARTHUR A. BAKER, U. S. Geological Survey.

Black Mesa is an elevated area of Cretaceous rocks forming the central part of a well defined structural basin in northeastern Arizona. It constitutes a large part of the Hopi Indian Reservation in Navajo and Coconino Counties; on the northern and eastern sides it extends a short distance into the Navajo Reservation and therefore enters

² BAILEY WILLIS. *Out of the long Past*. Stanford Cardinal 32: 8-11. 1922.

¹ Received December 18, 1928. Published with the permission of the Director, U. S. Geological Survey.